

Notice of Allowability

Application No.

10/053,847

Examiner

Rip A. Lee

Applicant(s)

PUCKETTE ET AL.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to April 15, 2004.
2. ☒ The allowed claim(s) is/are 1-11.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

This office action follows a response filed on April 15, 2004. Applicants have amended claims 1-4 and 6-11 to correct matters of form.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Eric D. Middlemas on June 24, 2004.

Cancel claims 12-21.

Claim 2, line 2 replace "having" with "has" as indicated by examiner's edit marks

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance: Claims 1-11 are allowed over the closest reference, U.S. Patent No. 5,840,647 to Puckette *et al.* and U.S. Patent No. 5,756,855 to Abatjoglou *et al.*

The present invention relates to a catalyst system comprising: (1) a diorganofluorophosphite ligand, (2) rhodium, and (3) a group VIII metal or group VIII metal containing compound that excludes rhodium. The mole ratio of fluorophosphite ligand to rhodium is at least 1:1, and component (3) is present in an amount effective to reduce the formation of HF during use of the catalyst system. Another embodiment of the invention is drawn to a catalyst solution comprised of the three components and a hydroformylation solvent.

Puckette *et al.* teaches a catalyst system comprising a diorganofluorophosphite compound and rhodium. The structures of the inventive diorganofluorophosphite compounds (in particular, the bridged, diphenylene fluorophosphite ligand) meet all the structural limitations of the present claims. The mole ratio of fluorophosphite to rhodium lies in the range of 1:1 to 100:1. A catalyst solution is also described since the reactions using the catalyst is performed in solvent such as toluene. The reference does not teach or fairly suggest use of a group VIII metal or group VIII metal containing compound, and therefore, subject matter of the present claims is not anticipated by Puckette *et al.*

Abatjoglou *et al.* relates to a method of preventing catalyst deactivation via ligand decomposition in hydroformylation processes. To solve this problem, the inventors use stabilizing compound such as $\text{Co}_2(\text{CO})_8$ is used in an amount of 1-5 moles per mole of

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rhodium to lower significantly the extent of decomposition in hydroformylation. The reference does not disclose use of a catalyst system containing rhodium and diorganofluorophosphite ligand. From the teachings of the prior art, which deals with conventional phosphite bearing hydroformylation catalysts, the skilled artisan would not find it obvious to modify the prior art to arrive at the subject matter of the present claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

ral

June 24, 2004



DAVID W. WU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER